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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,348	07/27/2001	Tomoya Kodama	212091US2SRD	7192
22850 7590 09/26/2007 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER LAO, LUN S	
			ART UNIT 2615	PAPER NUMBER
			NOTIFICATION DATE 09/26/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

09/915,348

Applicant(s)

KODAMA, TOMOYA

Examiner

Lun-See Lao

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3,8-10,14,24,30,34 and 35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-3, 8-10, 14, 24, 30, 34-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. This action is in response to the amendment filed on 07-09-2007. Claims 1, 4-7, 11-13, 15-23, 25-29, 31-33 have been cancelled and claims 35 has been added. Claims 2-3, 8-10, 14, 24, 30, 34-35 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07-09-2007 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-3, 8-10, 14, 24, 30, and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6275239 to Ezer.

Regarding Claim 35, Ezer discloses an audio processor which processes audio data via an external memory configured to store audio data and a plurality of programs corresponding to a plurality of processes which are to be sequentially executed in a given order for processing the audio data, the audio processor comprising (see fig.1):

- an instruction memory configured to store a program corresponding to each of the processes (702 in fig. 7);

- a data memory configured to store audio data (708 in fig.7 and see col. 3 lines 27-56, col. 10 lines 16-40);

- a DMA controller configured to DMA-transfer a program and audio data from the external memory to the instruction memory and the data memory(see fig.7);

- a control processor (101 in fig.1, CPU) configured to execute the program transferred to the instruction memory along with a progress of each of the processes, and request, while continuing a process which is currently executed, audio data and a program that are required for a next process to the DMA controller (see fig.7); and

- a coprocessor (102 in fig.1) configured to increase performance of reconstruction of the audio data obtained via the control processor according to the program given by the control processor (se figs 1-2 and col. 1 line 60-col. 2 line 31), but Ezer does not expressly disclose the coprocessor executing multiplication/accumulation addition according to VLIW (Very Long Instruction Word).

However, Examiner takes Official Notice that it is well known in the art to have the coprocessor execute multiplication/accumulation, addition according to VLIW (Very Long Instruction Word), wherein one VLIW instruction encodes multiple operations and

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therefore multiple operations can be handled at the same time, resulting in faster processing.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ezer to have the coprocessor execute multiplication/accumulation, addition according to VLIW (Very Long Instruction Word), wherein one VLIW instruction encodes multiple operations and therefore multiple operations can be handled at the same time, resulting in faster processing.

Ezer as modified discloses: the program required for a $k+1$ -th process and data are transferred to the instruction memory and the data memory from the external memory (see fig.7, DMA transfer the data from Dram 707 to Inst memory 702 and data memory 708 and see col. 9 line 44-col. 10 line 40); but Ezer fails to explicitly teach the control processor controls in such a manner that when a k -th (k is integer) process is started, the content of the data memory unnecessary for the k -th process out of a $k-1$ -th process results is saved in the external memory.

However, Ezer teaches that the processed data (is considered the $K-1$ -th process) can be transferred to Dram (707 in fig.7) from output buffer (712 in fig. 7) by DMA controller which means for the data is unnecessary for the next process (k -th) process.

Therefore, it would have been obvious the media coprocessor for performing 3-D graphics, video, and audio system as taught by Ezer could have used the control processor controls in such a manner as claimed so that more fast and save internal memory space can be provided to the processor controller.

Regarding Claim 2, Ezer as modified discloses the coprocessor is configured to subserve the control processor to subject sequentially the audio data to decoding, noise-less decoding, noise reduction, filter bank, and block switching in accordance with the programs and data fetched from the external memory in units of one procedure (Figs. 8 and 9; column 10, line 41 to column 11, line 42).

Regarding Claim 3, Ezer as modified discloses the coprocessor (102) is configured to subserve the control processor to execute the program fetched in the internal memory from the external memory in accordance with progress of the procedures of the audio process (Fig. 4).

Regarding Claim 8, Ezer as modified discloses the control processor sequentially transfers a plurality of program modules corresponding to processes of the audio process to the coprocessor from the external memory according to the progress of the processes (Figs. 1 and 2; column 1, line 60 to column 2, line 31).

Regarding Claim 9, Ezer as modified discloses the coprocessor (102) subserves the control processor to execute decoding of bit stream data, noiseless decoding, inverse quantization, scale factor, TNS processing, filter bank processing, and the block switching, in this order, to reconstruct audio data (Figs. 8 and 9; column 10, line 41 to column 11, line 42).

Regarding Claim 10, Ezer as modified discloses the control processor includes a function of predicting which process is performed after the process which is currently performed (Figs. 4 and 6).

Regarding Claim 14, Ezer as modified discloses the control processor is further configured to release a storage region of the internal memory occupied by the data stored in the internal memory or a program if the data stored in the internal memory or the program becomes unused by the coprocessor (Figs. 2, 4, 7, and 9).

Regarding Claim 24, Ezer as modified discloses the audio processor which further includes at least two parallel busses lead from the instruction memory and the data memory to the coprocessor (Fig. 4).

Regarding Claim 30, Ezer as modified discloses an audio input/output interface (Fig. 1); and an internal bus; wherein the internal bus links the control processor, the coprocessor and the audio input/output interface together (Figs. 4).

Regarding Claim 34, Ezer as modified discloses the divided procedures of the audio process include five different processing stages performed sequentially, the five different processing stages using different memory spaces of the data memory in the internal memory (Figs. 8 and 9; column 10, line 41 to column 11, line 42).

Response to Arguments

5. Applicant's arguments with respect to claim 2-3, 8-10, 14, 24, 30 and 34-35 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Eifrig (US PAT. 6,748,020) is cited to show other related audio processor and audio data processing method.

7. Any response to this action should be mailed to:

Mail Stop ____ (explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Facsimile responses should be faxed to:
(571) 273-8300


Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao, Lun-See whose telephone number is (571) 272-7501. The examiner can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian, can be reached on (571) 272-7848.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

Lao, Lun-See *L.S.*
Patent Examiner
US Patent and Trademark Office
Knox
571-272-7501
Date 09-11-2007


VIVIAN CHIN
SUPERVISOR, PATENT EXAMINER
TECHNOLOGY CENTER 2600

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